SUBSECTION 8.9

Agriculture and Soils

8.9 Agriculture and Soils

8.9.1 Introduction

This section describes the potential environmental effects on agriculture and soils from the construction and operation of the project. Potential impacts are assessed for the CVEC site and for the natural gas supply, water supply, and electric transmission line corridors.

Section 8.9.2 presents the LORS applicable to agriculture and soils. Section 8.9.3 describes the existing environment that could be affected, including agricultural use and soil types. Section 8.9.4 identifies potential environmental effects, if any, from project development and Section 8.9.5 presents mitigation measures. Section 8.9.6 describes the required permits and provides agency contacts. Section 8.9.7 provides the references used to develop this section.

A map of soil types is provided in Figures 8.9-1a through 8.9-1e. Important Farmland is shown in Figure 8.9-2. LORS are in Table 8.9-1. The physical and chemical characteristics are summarized in Table 8.9-2. Soil loss is discussed in Section 8.9.3.6. The effect of plant emissions is in Section 8.9.4.4. Permits are in Table 8.9-3.

8.9.2 Applicable Laws, Ordinances, Regulations, and Standards

Federal, state, county, and local LORS applicable to agriculture and soils are discussed below and summarized in Table 8.9-1.

8.9.2.1 Federal

8.9.2.1.1 Federal Water Pollution Control Act of 1972 and the Clean Water Act of 1977

The Federal Water Pollution Control Act of 1972 and the Clean Water Act (CWA) establish requirements for discharges from any activity that would affect the beneficial uses of receiving waters. The Regional Water Quality Control Board (RWQCB) is the administering agency. The CWA's primary effect on the project is with respect to the control of soil erosion during construction, including the preparation and execution of site-specific erosion control plans and measures for the construction of each project element that would require the physical soil disturbance.

8.9.2.1.2 USDA Engineering Standards

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS), National Engineering Handbook, 1983, Sections 2 and 3 provide standards for soil conservation during planning, design, and construction activities. The project would need to conform to these standards during grading and construction to limit soil erosion.

8.9.2.2 State

8.9.2.2.1 California Porter-Cologne Water Quality Control Act

The California Water Code requires protection of water quality by appropriate design, sizing, and construction of erosion and sediment controls. The discharge of soil into surface waters resulting from land disturbance may require filing a report of waste discharge (see Water Code Section 13260a).

TABLE 8.9-1
Laws, Ordinances, Regulations, and Standards for Agricultural and Soil Resources

Jurisdiction	LORS	Purpose	Regulating Agency	Applicability (AFC Section Explaining Conformance)
Federal	Federal Water Pollution Control Act of 1972: Clean Water Act of 1977 (including 1987 amendments).	Regulates stormwater discharge	RWQCB – Central Valley Region under State Water Resources Control Board	Sections 8.9.2.1 and 8.9.4.2.
	Natural Resources Conservation Service (1983), National Engineering Handbook, Sections 2 and 3.	Standards for soil conservation	Natural Resources Conservation Commission	Sections 8.9.2.1 and 8.9.5.
State	Porter-Cologne Water Quality Control Act of 1972; Cal. Water Code 13260-13269: 23 CCR Chapter 9.	Regulates stormwater discharge	CEC and the Central Valley Region under State Water Resources Control Board	Sections 8.9.2.2 and 8.9.4.2.
Local	City of San Joaquin Comprehensive General Plan and EIR, 1996.	Describes local policies for agricultural and soil resources	City of San Joaquin	Section 8.9.2.3.
	Fresno County Public Review Draft General Plan, 2000		Fresno County Board of Supervisors	Section 8.9.2.3.

8.9.2.3 Local

Ordinances for land grading and stormwater pollution control have been established by Fresno County. These ordinances establish permitting requirements and exemptions for grading land and activities that can cause the discharge of pollutants into stormwater systems or watercourses.

The Fresno County General Plan includes policies that address sedimentation and erosion control issues.

8.9.2.3.1 Fresno County General Plan

Open Space

Policies and implementation programs are found in the Open Space (OS) Element section of the Fresno County General Plan (Fresno County, 2000) that address sedimentation and erosion control issues. The grading ordinances specify the erosion and sediment control plan requirements for minimizing soil erosion and sedimentation into surface waters, as follows:

> **"Policy OS-A.23:** The County shall minimize sedimentation and erosion through control of grading, cutting of trees, removal of vegetation, placement of roads and bridges, and use of off-road vehicles. The County shall discourage grading activities during the rainy season unless adequately mitigated to avoid sedimentation of creeks and damage to riparian habitats."

> **"Policy OS-A.24:** The County shall continue to require the use of feasible and practical best management practices (BMPs) to protect streams from adverse effects of construction activities and urban runoff."

Land Use

Policies and implementation programs are found in the Land Use (LU) Element section of the Public Draft Fresno County General Plan (Fresno County, 2000) that address potential losses of agricultural lands. The goal of these policies and programs is:

> "To promote the long-term conservation of productive and potentially-productive agricultural lands and to accommodate agricultural-support services and agriculturally-related activities that support the viability of agriculture and further the County's economic development goals."

The County has proposed 20 policies associated with regulation of agricultural lands (Policies LU-A.1 through A.20) and seven implementation programs (Programs LU-A.A through A.G) to meet the above-stated goal. The County's proposed policies address activities that would convert existing agricultural land to non-agricultural uses. The implementation programs provide the mechanisms by which the County can accomplish the goal for use of agricultural lands. Implementation programs include zoning and subdivision ordinances, land trusts and easements, and stewardship outreach programs.

8.9.2.3.2 City of San Joaquin Comprehensive General Plan

Goal Number 3 of the City of San Joaquin General Plan states: "The City will seek to manage the rate of urban expansion at a level that does not exceed the capacity of the City, the Golden Plains Unified School District, or other agencies of local government to provide the necessary levels of community services and facilities required consistent with all other goals of the General Plan." To meet this goal, the City of San Joaquin will develop a Comprehensive Annexation Plan (CAP) to meet the future needs of commercial, industrial, and residential development. Policies under this objective are also developed to reduce the amount of prime agricultural lands that will be converted to urban uses.

Goal Number 4 of the City of San Joaquin General Plan is as follows: "It is the goal of the general plan to preserve and enhance the quality of living by preventing the degradation of the natural and man made environment, and by taking steps to off-set the effects of that degradation which has already occurred." Under this goal, the General Plan designates certain undeveloped land as "Reserves" under control of the City with the aim of preventing premature development of agricultural land.

8.9.3 Environmental Setting

Agricultural land uses within the proposed CVEC site and rights-of-way, include production agriculture, comprised primarily of hay, alfalfa, tomatoes, cotton, and other row crops. These uses are interspersed with small residential areas and roadways. Most of the gas, water, and electrical transmission rights-of-way follow existing roadways and right-of-way.

Information on types and distribution of soils within the project area was derived from published soil survey reports by the NRCS and a review of national soil data base information (NRCS, 2001).

Soil survey maps shown in Figures 8.9-1a through e, as well as descriptive information, are taken from: *Soils of Western Fresno County, California (NRCS, 1950), and Soil Survey: Eastern Fresno Area, California (NRCS, 1971)*. Maps have been reduced from 1:24,000 scale to facilitate review and because soil types are generally consistent over large areas. Full soil descriptions were obtained from the Official Soil Descriptions (OSD) web page (NRCS, 2001).

Data for the affected environment are summarized and presented below:

- Soil types along the project linears (water, gas, transmission) are identified in Figures 8.9-1a through 8.9-1e.
- Table 8.9-2 summarizes the characteristics of each of the individual soil mapping units identified on or near the project site boundaries or along the project's linear facilities. The table summarizes depth, texture, drainage, permeability, erosion hazard rating, land capability classification and revegetation potential.
- Figure 8.9-2 shows "Important Farmlands" as defined by the California Department of Conservation (CDC) (CDC, 2001a). The farmland mapping designated specific areas as follows: Prime Farmland; Farmland of Statewide Importance; Unique Farmland; Farmlands of Local Importance; Grazing Land; Urban and Built-Up Land; Other Land; and Water.
- Soil series designated as "Prime Farmland" (or Farmland of Statewide Importance) are also listed in Table 8.9-2.

8.9.3.1 Agricultural Use On and Around the Proposed CVEC Site

All 85 acres of the parcel are currently farmed for cotton. Lands immediately to the north, east, and south of the proposed site are used similarly for cotton, corn, or other row crops. To construct the site, 25 acres would be permanently cleared, graded, filled, and paved. Twenty acres would be used temporarily for a construction laydown area.

8.9.3.2 Agricultural Use Along Water and Gas Pipelines

The proposed and alternative water and gas pipelines were sited to minimize their length and disruption of roads and agricultural uses. Nearly all the water and gas pipelines run adjacent to or within lands designated as Prime Farmland or Farmland of Statewide or Local Importance. However, water and gas pipelines run almost entirely along roads and are buried to minimize disturbance to agriculture lands. Uses within the proposed corridor (500 feet on each side of the pipeline) comprise pasture, row crops, hay, and alfalfa.

Generally, construction would consist of trenching, followed by soil backfilling or replacement with native soil and restoration of the natural contours. Where water- or natural gas pipeline cross agricultural land, the land would be returned to agricultural production following completion of the pipeline installation by contractors. In the project area, the proposed pipeline routes follows existing roadways and will result in temporary disturbances of lands adjacent to potentially prime agricultural lands.

8.9.3.3 Agricultural Use Along the Electrical Transmission Line

A segment of electrical transmission line would be constructed to connect the project facility to the existing transmission lines located approximately 0.5 mile south of the proposed CVEC site (Figure 8.9-1a). There would be additional construction to connect the transmission lines from the substation to the project. The proposed transmission lines would cross row crops south of the project site.

8.9.3.4 Soil Types Within the Study Area

Table 8.9-2 provides the physical and chemical properties of the soil mapping units that are found at the proposed CVEC site and along proposed linear routes.

TABLE 8.9-2
Summary of Soil Mapping Unit Properties

Map Symbol	Soil Series	Depth (in ft.) to Bedrock or Hardpan / Seasonal High Water	Texture	Permeability (in/hr)	Drainage	Erosion Potential		Land Capability	Storie Index	pH	USCS Classification	Salinity (mmhos/cm)	Important Farmland Classification
						Slope (%)	Water/Wind Erosion Hazard						
37S	Panoche	---	clay loam	---	good	0 - 2	None / ---	---	77	---	---	---	---
38S	Panoche	---	silty clay	---	good	0 - 2	None / ---	---	63	---	---	---	---
44M	Oxalis	---	silty clay		imperfect	0 - 2			30				
45MA	Oxalis	---	silty clay	---	imperfect	0 - 2	None / ---	---	18	---	---	---	---
65A	Levis	---	silty clay	---	poor	0 - 2	None / ---	---	8	---	---	---	---
63M	Merced		clay		subject to overflow imperfect	0-2	None / ---	---	18-59	6.6-8.4	CH or MH	0-15	---
64MA	Levis		silty clay	---	subject to overflow imperfect	0-2	None / ---	---	20	8.5-9.0	---	---	---
82S	Merced	---	clay	<0.05 to 0.8	subject to overflow, imperfect	0 - 2	None / ---	IIs-5 and IVs-6	18 to 59	6.6 to 8.4	CH or MH	0 to 8	Prime
90A	Merced	---	clay		subject to overflow, imperfect	0 - 2			3				
Bu	Borden	>5 / >10	loam	0.2 to 2.5	well to moderately well	0 - 2	None / ---	IIIs-6	42	6.6 to 8.4	CL	<4-15	FSI
Ce	Cajon	>5 / >10	loamy coarse sand, coarse loamy sand	5.0 to 10.0	excessively	0 - 2	None / ---	IIIs-4	41 to 72	7.4 to 9.5	SM	0-15	FSI

TABLE 8.9-2
Summary of Soil Mapping Unit Properties

Map Symbol	Soil Series	Depth (in ft.) to Bedrock or Hardpan / Seasonal High Water	Texture	Permeability (in/hr)	Drainage	Erosion Potential		Land Capability	Storie Index	pH	USCS Classification	Salinity (mmhos/cm)	Important Farmland Classification
						Slope (%)	Water/Wind Erosion Hazard						
CfA	Calhi	>5 / >10	loamy sand	5.0 to 10.0	somewhat excessively	0 - 3	--- / Slight to Moderate	IIIs-4	72	7.4 to 9.0	SM	0 to 4	FSI
CfB	Calhi	75 / 710	loamy sand	5.0 to 10.0	somewhat excessively	3-9	- / moderate	111s-4	68	7.4-9.0	SM	0-4	
Ed, Ep	El Peco	1.5 to 3 / >10	fine sandy loam, loam	<0.05 to 5.0	somewhat poorly	0 - 2	Slight to None / ---	III-s6	23	7.9 to 9.6	SM or ML	4 to 15	None
Fs, Fu, Ft, Fv, Fw, Fz, Fx	Fresno	1 to 4 / >10	sandy loam, fine sandy loam, clay loam	<0.05 to 2.5	moderately well	0 - 2	Slight to None / ---	IIIs-6	3 to 16	7.9 to 9.5	ML or CL	0 to 30	None
Hsd, Hse, Hst, Hsy	Hesperia	>5 / >10	Sandy loam, fine sandy loam	0.2 to 5.0	well	0 - 2	Slight to None / ---	IIs-4, IIs-6, IIs-3, IIIs-6, and I-1	50 to 100	6.1 to 9.0	SM or ML	<4	Prime
Mf, Mh, MdMk, Ml	Merced	>5 / >10	clay, clay loam	<0.05 to 0.8	moderately well	0 - 2	None / ---	IIs-5 and IVs-6	18 to 59	6.6 to 8.4	CH or MH	0 to 8	Prime
Md	Madera	2-4 / 710	loam	<0.05-5.0	well	0-2	--- / ---	111s-6	20	6.1-9.0	ML, CL, or SM	0-15	
Pc, Pd, Pe	Pachappa	>5 / >10	loam	0.2 to 2.5	well	0 - 2	Slight / ---	I-1 and IIs-6	56 to 70	7.4 to 8.4	ML or CL	<4-20	Prime
Pl	Playas	---	---	---	---	0 - 2	--- / ---	---	---	---	---	---	---
Pu, Pr, Pt, Pw	Pond	>5 / >10	sandy loam, fine sandy loam, loam	0.2 to 5.0	somewhat poorly to moderately well	0 - 2	Slight to None / Slight	IIs-6 and IIIs-6	11 to 16	7.9 to 10.5	SM, ML, or CL	0 to 30	FSI
Ro	Rossi	>5 / >10	fine sandy loam	0.05 to 2.5	poorly	0 - 2	None / ---	IVs-6	32	7.9 to 10.5	SM, CL, or ML	4 to 50	None
Td	Temple	>5 / >10	clay loam	0.2 to 5.0	poorly or drier	0 - 2	None / ---	I-1	81	6.6 to 9.6	CL or SM	<4	Prime

TABLE 8.9-2
Summary of Soil Mapping Unit Properties

Map Symbol	Soil Series	Depth (in ft.) to Bedrock or Hardpan / Seasonal High Water	Texture	Permeability (in/hr)	Drainage	Erosion Potential		Land Capability	Storie Index	pH	USCS Classification	Salinity (mmhos/cm)	Important Farmland Classification
						Slope (%)	Water/Wind Erosion Hazard						
Tr, Ts, Tt Tu	Traver	>5 / >10	sandy loam, fine sandy loam	0.2 to 5.0	Somewhat poorly to moderately well	0 - 2	Slight to None / Slight	IIs-6	9 to 36	7.4 to 10.5	SM, SC, or ML	4 to 50	FSI
TzbA	Tujunga	75 / 710	loamy sand	5.0-10.0	excessively	0-3	slight / ---	111s-4	76	6.1-7.3	SM	<1	
Wa	Waukena	>5 / >10	fine sandy loam	<0.05 to 2.5	somewhat poorly to moderately well	0 - 2	Slight to None / ---	IVs-6	16	7.4 to 10.4	SM, ML, SC, or CL	0 to 8	None

Note: No information available.

8.9.3.5 Prime Farmlands

The designations of Important Farmlands in the project vicinity are shown on Figure 8.9-2 (CDC, 2001a) and summarized in Table 8.9-2. This map is derived from information provided from the Farmland Mapping and Monitoring Program (FMMP) administered by the Division of Land Resource Protection in the California Department of Conservation. The available mapping of important farmlands covers the project area west of Fresno Slough but does not provide information for the areas between Fresno Slough and the Interstate 5 corridor.

The Important Farmland Map (Figure 8.9-2) shows that most of the project area is considered as Prime Farmland, Farmlands of Statewide Importance, Unique Farmlands, or Farmlands of Local Significance. Statistics from a 1998 inventory of important farmlands in Fresno County indicate that there are approximately 634,500 acres of land classified as Prime Farmland, Farmlands of Statewide Importance, Unique Farmlands, or Farmlands of Local Significance (CDC, 2001b). The inventory also indicates a 0.93 percent decline between 1996 and 1998 and 0.53 percent decline between 1998 and 2000 of Important Farmland acreage. Commensurate increases of Urban and Built-up Classifications are observed for these periods. The year 2000 farmland inventory indicated 642,167 Important Farmland acres in Fresno County.

The project site is on land identified as Prime Farmland as is the land to the south between the site and the Helm Substation. The natural gas pipeline is also located adjacent to Prime Farmlands as it extends west to Fresno Slough. The water supply pipeline is located adjacent to Prime Farmlands along Manning Avenue for approximately two miles east of the City of San Joaquin. The majority of the water supply pipeline route east of this point is located adjacent to lands that are classified as Farmlands of Statewide Importance or Unique Farmland. More Prime Farmland is encountered in the last 1 to 1.5 mile segment of the water supply pipeline route just south of the Fresno-Clovis WWTF.

8.9.3.6 Soil Loss and Erosion

The water erosion hazard designations for soils in the project area are listed in Table 8.9-2. Topographic slopes in the study area are less than 3 percent. All water erosion hazards are classified as none (no erosion or slight erosion hazard). The overall potential for soil loss from water erosion is slight and the construction sites would not have significant limitations for revegetation.

Where provided in the soil survey, the potential for wind erosion is summarized in Table 8.9-2. The wind erosion hazard was not provided for most of the soil mapping units described in the soil survey (NRCS, 1971) and these soils are presumed to have low potential for wind erosion. For a few soil mapping units, a slight to moderate hazard of wind erosion was indicated. These mapping units are: Cajon loamy coarse sand or coarse loamy sand (Ca, Ce); Calhi loamy sand (CfA); Delhi loamy sand (DhA); and El Peco fine sandy loam and loam (Ed, Ep). Wind erosion hazards are generally associated with bare or disturbed soil. Based on the anticipated soil conditions and proposed mitigation measures, soil erosion would be negligible.

8.9.3.7 Other Significant Soil Characteristics

The revegetation potential is fair to excellent for most of the land along the proposed project linears. Some of the soils in these farmland classifications are considered to be saline and saline-alkali soils. Revegetation on soils that are saline or saline-alkali should not pose any problems provided adequate irrigation is provided while plants are being established.

8.9.4 Potential Environmental Consequences

The following subsections describe the potential environmental effects on agricultural production and soils during the construction and operation phases of the project.

The potential for impacts to agricultural and soils resources were evaluated with respect to the criteria described in the Appendix G checklist of CEQA. An impact is considered potentially significant if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps for the Farmland Mapping and Monitoring Program by the California Resources Agency to non-agricultural use
- Conflict with existing zoning for agricultural use, or a Williamson Act contract
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use
- Impact jurisdictional wetlands
- Result in substantial soil erosion

8.9.4.1 Impacts to Agricultural Soils

Construction of the project site would permanently remove up to 85 acres from agriculture. None of these lands are under the Williamson Act contracts.

The project site is currently used for agricultural purposes. The City of San Joaquin indicates that the parcel and adjacent lands were designated for future industrial uses as part of the City's Sphere of Influence. The project is consistent with the City of San Joaquin land use and zoning designations and would eventually be used for industrial purposes, regardless of the project.

The project would represent a 0.01 percent decrease in available farmlands in Fresno County. Data from the CDC indicate a decrease in conversion of farmlands to Urban and Built-up lands over the past six years. The conversion rate of Important Farmlands to Urban and Built-up lands in 1996 (0.93 percent) has decreased by approximately 50 percent in 2000 (0.53 percent).

The impact of agricultural conversion for the parcel that would be used for the site has previously been considered from a local and regional planning perspective by the City of San Joaquin and Fresno County. Conversion of farmlands in the County appear to be decreasing and the degree to which the project would convert Important Farmlands is very minor compared to available resources. Therefore, the impact of the conversion of 85 acres of lands currently used for agricultural purposes as a result of the project is considered to be less than significant.

8.9.4.2 Construction

Project construction could potentially cause increased erosion, compaction, loss of soil productivity, and disturbance of saturated soils. Soil erosion could increase the sediment load in surface waters downstream of the construction site.

Construction of the project would result in temporary soil compaction in parking and laydown areas. Approximately 20 acres on the site would be affected. Any excavated soils not re-used during construction at the site would be managed or removed to prevent subsequent erosion and sedimentation issues.

The amount of cut and fill required for the project has not been specifically calculated. However, some preliminary estimates can be made based on the size of the parcel, the relative topography and the estimated elevation of completed building pads. The total developed area is approximately 25 acres, most of which will be filled to a post-construction elevation of 2 feet above grade. A smaller portion of the 85-acre parcel will be excavated to provide onsite detention for stormwater. At this

time, it is estimated that all fill material will come from onsite excavations. Filling 25 acres to an elevation of 2 feet above grade will require approximately 80,000 cubic yards of fill material.

Once constructed, the linear facilities would have no significant effect on surficial soils onsite or offsite. However, during construction, standard erosion and dust control methods would be implemented to reduce siltation in storm drains and waterways. Use of these methods would reduce losses of soil to wind and water erosion to a less than significant level.

The site, construction parking and laydown area, and some linears would pass through areas currently used for agriculture. Any areas not required for project operations would be restored to pre-construction conditions. Therefore, the project construction would have a less than significant impact on agricultural uses.

8.9.4.3 Operation

Project operation would not result in impacts to the soil from erosion or compaction. Routine vehicle traffic during project operation would be limited to existing roads, most of which are paved, and standard operating activities would not involve the disruption of soil. When linear facilities need to be inspected or maintained, vehicle traffic near cultivated areas would be minimized and slow. Impacts to soil from project operations would be less than significant.

8.9.4.4 The Effects of Generating Facility Emissions on Soil-Vegetation Systems

There is a concern in some areas that emissions from the generating facility, principally NO_x from the combustors or drift from the cooling towers, would have an adverse effect on soil-vegetation systems in the project vicinity. This is principally a concern where environments that are highly sensitive to nutrients or salts, such as serpentine habitats, are downwind of the project.

In this case, the dominant land use downwind of the project is agriculture and there are no serpentine habitats in the project area. The addition of small amounts of nitrogen to agricultural areas would be insignificant within the context of fertilizers, herbicides, and pesticides typically used.

8.9.4.5 Cumulative Effects

Although currently used for agricultural purposes, the CVEC project site is located within the incorporated boundaries of the City of San Joaquin. The City of San Joaquin General Plan (City of San Joaquin, 1996) designates the site for future industrial purposes and the site is currently zoned for uses consistent for the project (City of San Joaquin, 2001). The CVEC site is designated for industrial uses and the site would eventually be converted from its current agricultural use regardless of the project.

In addition to the project being consistent with previously considered land use planning decisions, conversion of Important Farmlands in Fresno County has decreased over the past 6 years. As indicated above, the conversion rate of Important Farmlands to Urban and Built-up land in 1996 (0.93 percent) has decreased by approximately 50 percent in 2000 (0.53 percent) (CDC, 2001b). The project would represent conversion of approximately 0.01 percent of available Important Farmlands in Fresno County.

The cumulative impact of agricultural conversion at the site has previously been considered from a local and regional planning perspective. Conversion of farmlands in the County appear to be decreasing and the degree to which the project would convert Important Farmlands is very minor compared to available resources. Therefore, potential cumulative impacts to conversion of agricultural resources in Fresno County associated with the CVEC project are considered to be less than significant.

8.9.5 Mitigation Measures

Erosion control measures would be required during construction to help maintain water quality, protect property from erosion damage, and prevent accelerated soil erosion or dust generation that destroys soil productivity and soil capacity. Temporary erosion control measures could be installed before construction begins and would be removed from the site after the completion of construction.

8.9.5.1 Temporary Erosion Control Measures

Temporary erosion control measures would be implemented before and during construction. These measures typically include revegetation, dust suppression, berms, ditches, and sediment barriers. Vegetation is the most efficient form of erosion control because it keeps the soil in place and maintains the landscape. Vegetation reduces erosion by absorbing raindrop impact energy and holding soil in place with fibrous roots. It also reduces runoff volume by increasing infiltration into the soil.

Disturbed areas would be revegetated with rapidly growing restoration groundcover as soon as possible after construction and vehicle traffic would be kept out of revegetated areas. If required, revegetation of the area disturbed by construction of the linear facilities would be accomplished using locally prevalent, fast growing plant species. Where the linears are located within farmed areas, the disturbed soils would be stabilized with a temporary fast growing plant. These areas would be returned to the original crop uses on the first subsequent planting cycle.

During construction of the project and the related linear facilities, dust erosion control measures would be implemented to minimize the wind-blown erosion of soil from the site. Water of a quality equal to or better than either existing surface runoff or irrigation water would be sprayed on the soil in construction areas to control dust and during revegetation.

Sediment barriers, such as straw bales or silt fences, slow runoff and trap sediment. Sediment barriers are generally placed below disturbed areas, at the base of exposed slopes, and along streets and property lines below the disturbed area. Sediment barriers are often placed around sensitive areas, such as wetlands, creeks, or storm drains, to prevent contamination by sediment-laden water.

Because the site is nearly level, it is not considered necessary to place barriers around the property boundary, but some barriers would be placed in locations where offsite drainage could occur to prevent sediment from leaving the site. Barriers and other sedimentation control measures would be used to prevent runoff into the irrigation ditch east of the site. If used, straw bales would be properly installed (staked and keyed), then removed or used as mulch after construction. Runoff detention basins, drainage diversions, and other large-scale sediment traps are not necessary because of the level topography and surrounding paved areas. Any soil stockpiles would be stabilized and covered if left onsite for long periods of time. These methods can be employed for construction of the waterline and most of the natural gas pipeline.

8.9.5.2 Permanent Erosion Control Measures

Permanent erosion control measures on the site include drainage and infiltration systems, slope stabilization, and long-term revegetation or landscaping. Revegetation or landscaping would follow from planting for short-term erosion control.

A mitigation monitoring plan will be developed in conjunction with CEC to set performance standards and monitor the effectiveness of mitigation measures. This plan will address the timing and methods for monitoring plant establishment, as well as reporting and response requirements.

8.9.6 Permits and Agency Contacts

Permits required for the project, the responsible agencies, and proposed schedule are shown in Table 8.9-3.

TABLE 8.9-3
Permits and Agency Contacts for CVEC Agriculture and Soils

Permit or Approval	Schedule	Agency Contact	Applicability
Fresno County Grading Permit	Prior to Construction	Phil Desatoff, Planner Fresno County Planning and Resource Management 2220 Tulare Street, 8th floor Fresno, CA 93721 559-262-4309	Grading of County right-of-way for installation of linear facilities
Approval of Grading Plan	Prior to Construction	Shahid Hami, City Manager City of San Joaquin 21900 Colorado Avenue P.O. Box 758 San Joaquin, CA 93660 559-693-4311	Grading of site surface
Construction Activity, Stormwater and NPDES Permit	Prior to Construction	Brian Earlenson, Water Quality Engineer RWQCB 3614 East Ashlan Street Fresno, CA 93726 559-445-6071	Regulation of stormwater discharge from site and linear facilities during construction

8.9.7 References

City of San Joaquin. 1996. Comprehensive General Plan and EIR.

City of San Joaquin. 2001. Initial Study and Negative Declaration for the Southwest Area Annexation. May.

California Department of Conservation (CDC). 2001a. Farmland Mapping and Monitoring Program Map for Fresno County. Division of Land Resource Protection, Sacramento.

California Department of Conservation (CDC). 2001b. Farmland Mapping and Monitoring Program Statistics web page at http://www.consrv.ca.gov/dlrp/FMMP/fmmp_stats.htm.

Fresno County. 2000. Fresno County General Plan (Public Review Draft). January.

National Resource Conservation Service (NRCS) (formerly the Soil Conservation Service [SCS] of the U.S. Department of Agriculture). 1950. Soils of Western Fresno County, California. August.

NRCS. 1971. Soil Survey, Eastern Fresno Area, California. October.

NRCS. 1983. National Engineering Handbook.

NRCS. 2001. Official Series Descriptions web page at http://www.statlab.iastate.edu/cgi-bin/osd.

CITY OF SAN JOAQUIN

SITE LOCATION

HELM SUBSTATION

LEGEND

PROJECT SITE

PROPOSED GAS LINE ALIGNMENT

PROPOSED WATER LINE ALIGNMENT

TRANSMISSION LINE

NOTE:
SEE TABLE 8.9-1 FOR
SOIL TYPE DESCRIPTIONS;
W:WATER

N

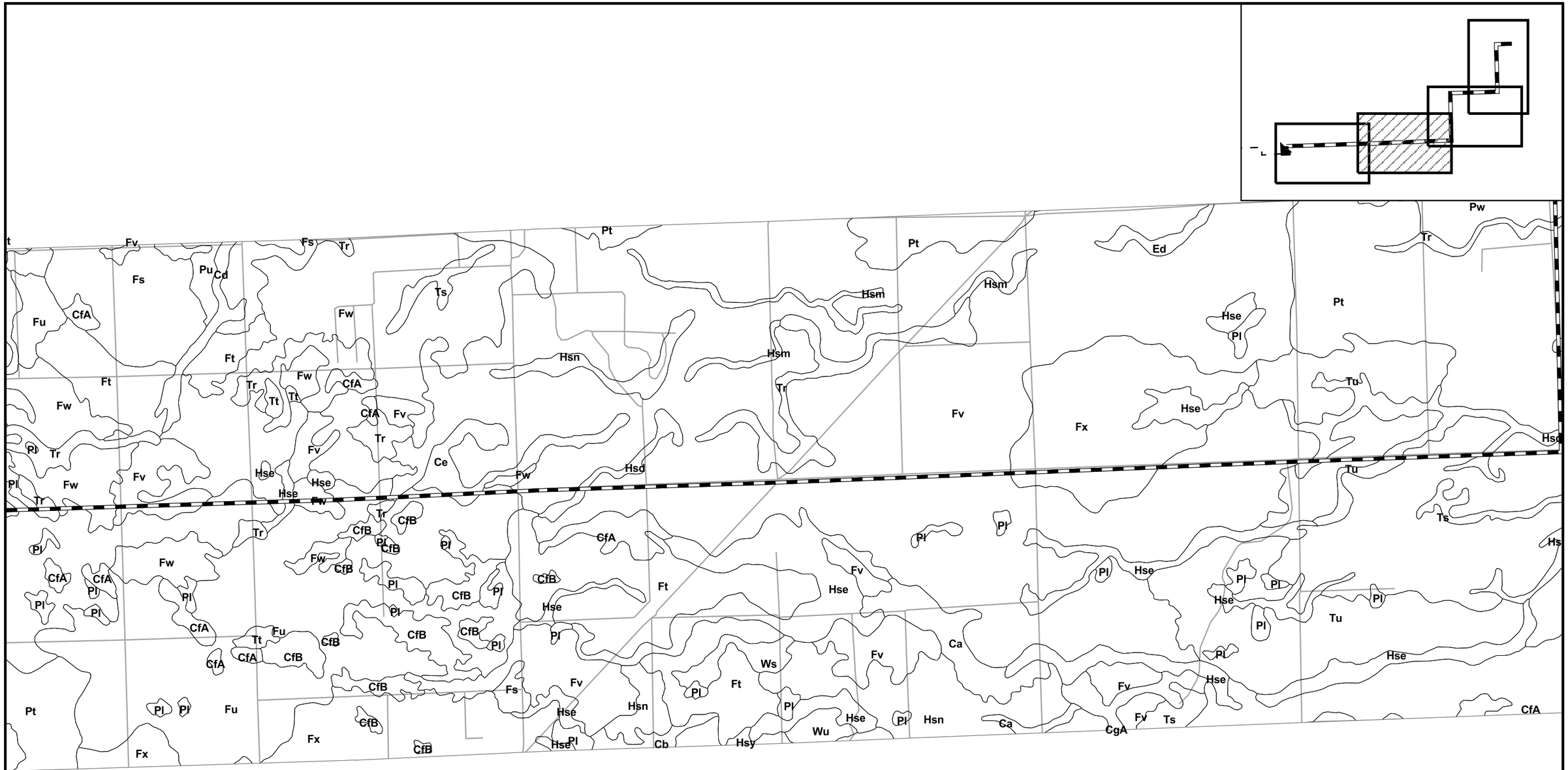
2000 0 2000 Feet

SCALE IS APPROXIMATE

FIGURE 8.9-1a
SOIL TYPES IN PROJECT AREA
CENTRAL VALLEY ENERGY CENTER
APPLICATION FOR CERTIFICATION

CH2MHILL

CH2M Hill RDD ArcView Project File \\Thor\Cart1\rddgis\cvec\cvec_soil.apr 8:28 a.m. 10-4-2001



LEGEND

PROPOSED WATER LINE ALIGNMENT

N

NOTE:
SHOWS 1 MILE CORRIDOR
SEE TABLE 8.9-1 FOR
SOIL TYPE DESCRIPTIONS;
W: WATER

2000 0 2000 Feet

SCALE IS APPROXIMATE

FIGURE 8.9-1b
SOIL TYPES IN PROJECT AREA

CENTRAL VALLEY ENERGY CENTER
APPLICATION FOR CERTIFICATION

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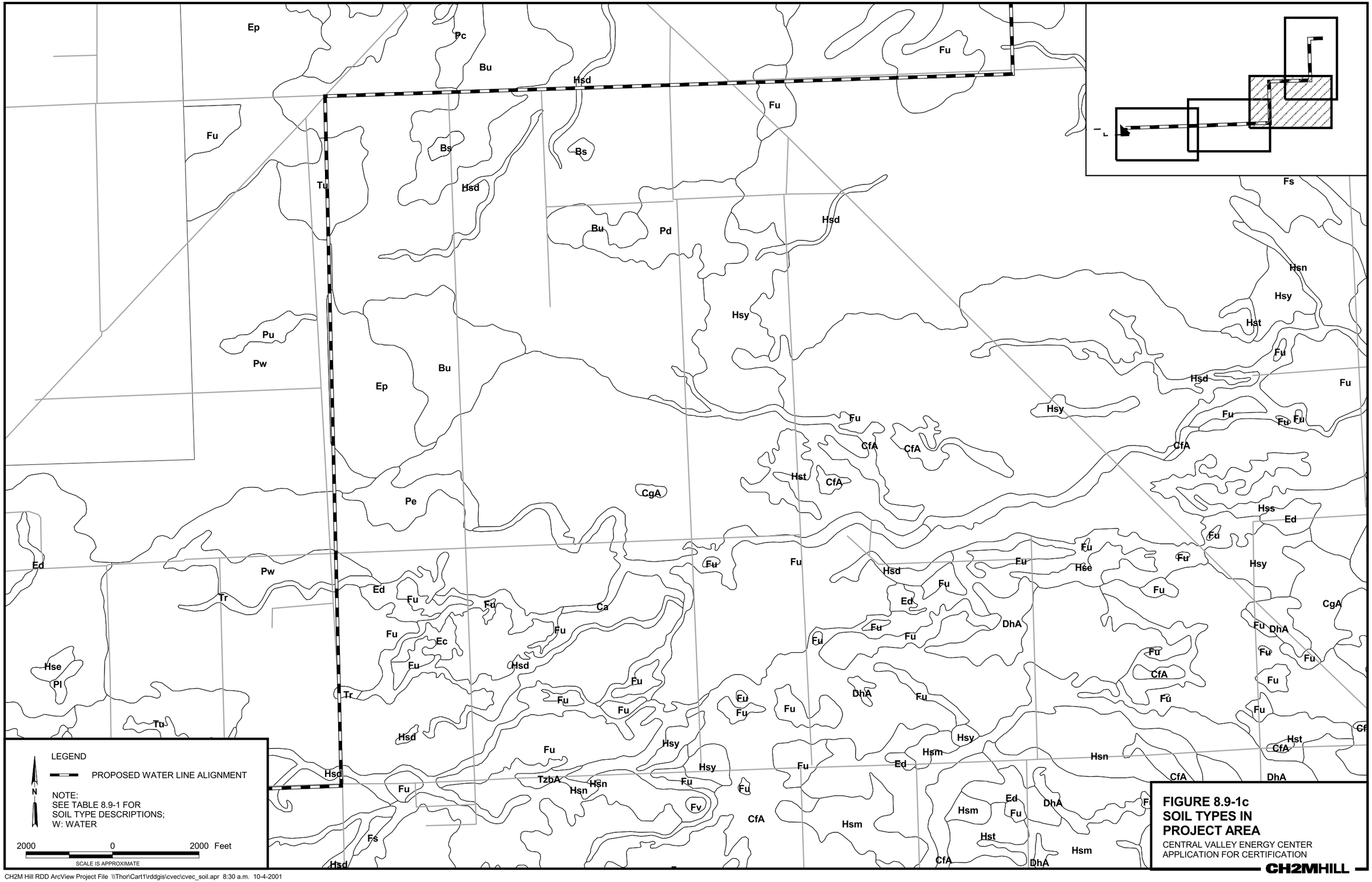

FIGURE 8.9-1c
SOIL TYPES IN PROJECT AREA
CENTRAL VALLEY ENERGY CENTER
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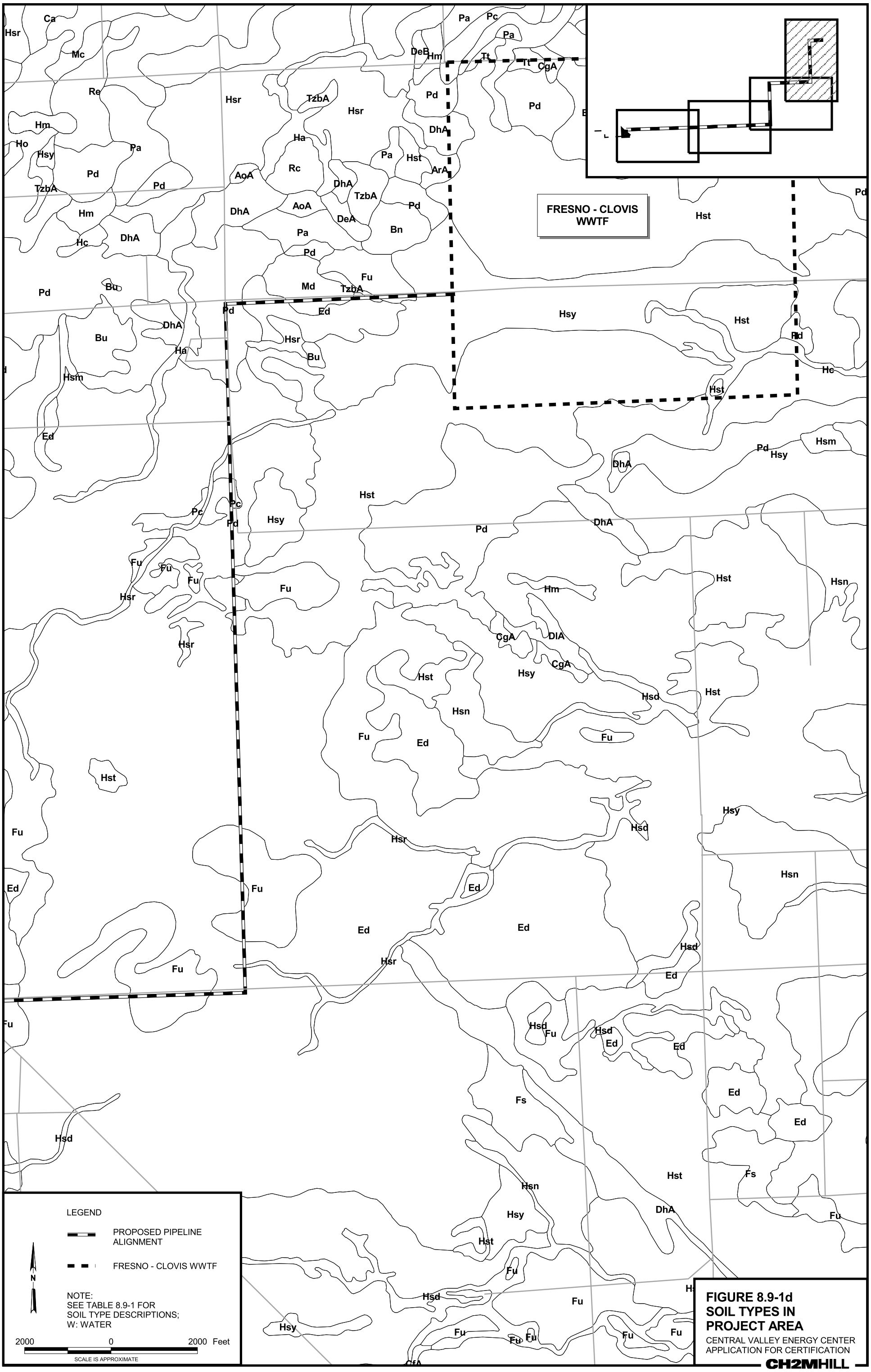

FIGURE 8.9-1d
SOIL TYPES IN PROJECT AREA
CENTRAL VALLEY ENERGY CENTER
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GAS LINE INTERCONNECTION

PROPOSED GAS LINE ALIGNMENT

PROPOSED WATER LINE ALIGNMENT

NOTE:
SEE TABLE 8.9-1 FOR
SOIL TYPE DESCRITION;
W: WATER

N

1 0 1 Miles

SCALE IS APPROXIMATE

FIGURE 8.9-1e
SOIL TYPES IN PROJECT AREA
CENTRAL VALLEY ENERGY CENTER
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FRESNO - CLOVIS WWTF

S DICKENSON AVE

W AMERICAN AVE

S HENDERSON AVE

MCMULLIN

PLACER AVE

W COLORADO RD

City of San Joaquin

MANNING AVE

145

Fresno Slough

Limit of Detailed Important Farmland Mapping

Helm

LEGEND

FARMLAND

- PRIME FARMLAND
- FARMLAND OF STATEWIDE IMPORTANCE
- UNIQUE FARMLAND
- FARMLAND OF LOCAL IMPORTANCE
- URBANIZED AREAS
- PROJECT SITE

- PROPOSED GAS LINE ALIGNMENT
- PROPOSED WATER LINE ALIGNMENT

N

Notes:
1. Important farmland mapping from CDC, 2001
2. Legend describes farmland types in areas associated with the CVEC project only.

1 0 1 Miles

SCALE IS APPROXIMATE

FIGURE 8.9-2
IMPORTANT FARMLAND IN PROJECT AREA
CENTRAL VALLEY ENERGY CENTER
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